

HEADWATERS

PUBLICATION OF MARYLAND SEA GRANT EXTENSION WATERSHED EDUCATORS

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DEAR HEADWATERS READERS,

Summer is finally upon us with the sun glowing overhead and our world-famous Maryland humidity wrapping us in a cloak of dampness. This time of year requires us to take a different pace, a slower one where we look for shade and stop to take in the myriad hues of green. In his 1895 book "The Use of Life," English politician, philanthropist, and scientist John Lubbock summed it up best, "Rest is not idleness, and to lie sometimes on the grass on a summer day listening to the murmur of water, or watching the clouds float across the sky, is hardly a waste of time."



As the Editor, I'd like to think that in 100 years people will be quoting from the great stories you've been reading in Headwaters. I guess I'll keep that dream to myself and move on to tell you what's inside the summer edition of Headwaters. In this issue you will find out how Extension is utilizing neighborhood gardens as a place to engage communities; what equity, inclusion, and bison have in common; and how Calvert County is working with Extension to improve water quality. Read on to find out about our Watershed Stewards Academy retreat; if you're eligible for a rebate or incentive for that rain barrel; and if you're looking for a day-trip suggestion, we've got just the place. So as you get a cool glass of water and sit in the shade for a moment, be sure to look at the article on the significance of groundwater in Maryland. Thanks for taking time to read this issue and we'd love to hear from you about the articles.

Sincerely,

The Maryland Sea Grant Extension Watershed Educators Team

Image credit: pngriver.com





Highlighting Extension's Work in a Baltimore City Community Garden

+ KELSEY BROOKS

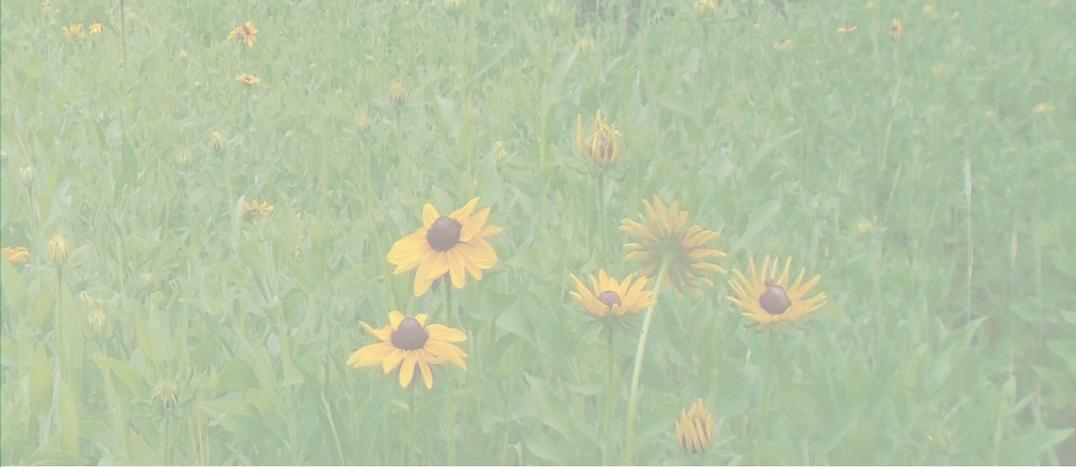


As Extension Agents, we're always trying to find relevant and effective ways to communicate with the public. As a person who probably spends too many hours on YouTube (something the "digital wellbeing" feature on my phone likes to tell me), I would also venture that video production is an outreach method where there is room for us to grow; not only as a way to share information, but also to highlight the work that we do.

Maryland Sea Grant (MDSG) has started to increase efforts in this area, collaborating with students from Morgan State University's School of Global Journalism & Communication to produce two short films. The first, *Smithville*, was released in early 2019, and focused on an Eastern Shore community that is losing ground, and its history, to sea level rise. For the second project, MDSG was looking for something "closer to home" for the Morgan State students, which is how I was looped in.

Nothing in my background would indicate that I should be helping to "produce" a film, but as an Extension Agent in Baltimore City my role was to identify an appropriate project related to the stormwater work that we do and connect the MDSG staff and Morgan State students to locations and interview subjects. That project was the "Feed Our Future" initiative that the University of Maryland Extension - Baltimore City office is pursuing in Baltimore's Reservoir Hill Community Garden.





“The gardens act as hubs for all of the services Extension can provide from gardening expertise, to youth development, to nutrition and financial education, to improving stormwater management in urban neighborhoods.”



Community members prep the Reservoir Hill Community garden for the upcoming season during a cleanup day. Source: Devon Ashby.

“Feed Our Future” is one of the National Urban Extension Leaders network’s five focus areas. Baltimore City Extension has taken a community development approach to this initiative, partnering with three existing community gardens in underserved areas. The gardens act as hubs for all of the services Extension can provide from gardening expertise, to youth development, to nutrition and financial education, to improving stormwater management in urban neighborhoods.

The film project turned out to be a great opportunity to highlight how Extension is working across programs to produce better outcomes and the many co-benefits green spaces can have in ultra-urban areas like Baltimore City. Once released, the film will be available through [MDSG’s YouTube channel](#). While that won’t help me meet my “digital wellbeing” goals, the film should be well worth the watch.



Walking the Talk of Equity and Inclusion

+ JENNIFER DINDINGER



I had the privilege of attending the National Conference on Volunteerism in Billings, Montana this May. One session that really interested me was done by Minnesota 4-H Youth Development. The session, “Creating an Organizational Lens for Diversity and First-Generation Work,” was led by MN 4-H educators. They shared a brief outline of the principles behind the lens and how they could be applied to make programming more responsive to and reflective of changing populations. I plan to use this tool in my work.

The Five Principles are¹:

1. We commit to approaching our work with **cultural humility**.
2. We commit to building **trust**.
3. We are **person-centered**.
4. We commit to a **strengths-based** approach.
5. We **engage** program participants and partners in the design, decision-making, and evaluation of programs.



I didn't take any conference photos, only wildlife! Bison in Lamar Valley. Source: Jen Dindinger



“All five principles need not be taken on at once; it is easier to start with one or two and challenge yourself to make some changes before moving on.”

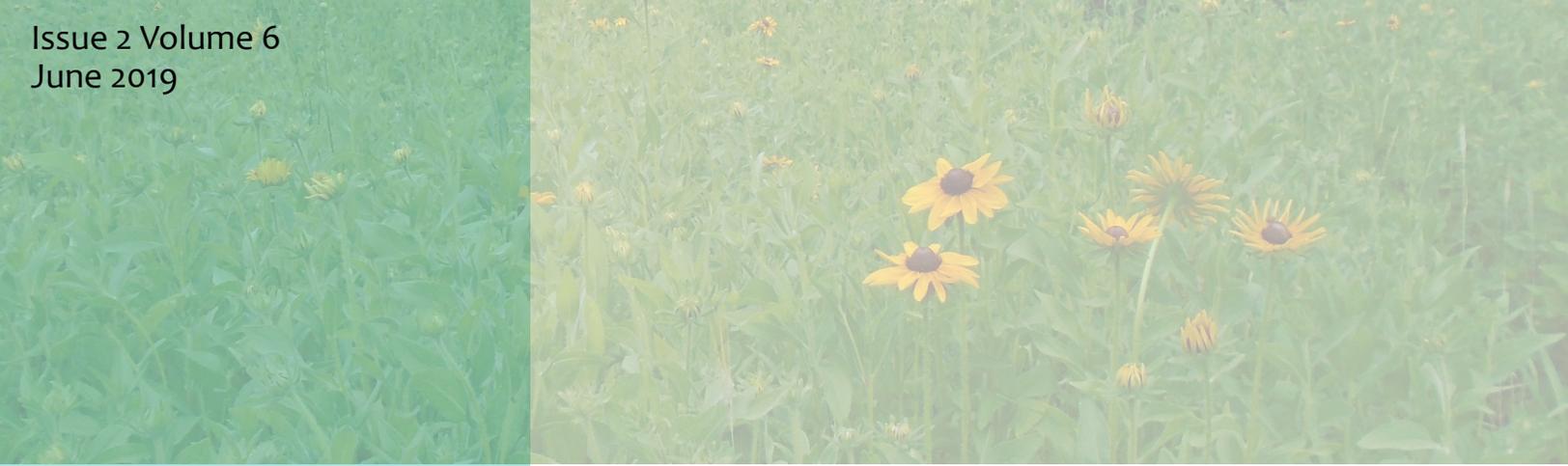
Each principle comes with a series of questions educators can ask themselves to see if both their individual work and their organizational work reflect these ideals. For example, one of the questions for Principle 3: Person-centered Approach is, “Which of my biases may be affecting who and how I recruit for specific program opportunities?” All five principles need not be taken on at once; it is easier to start with one or two and challenge yourself to make some changes before moving on.



Close as I ever need to be to a real life grizzly bear. Source: Jen Dindinger

Minnesota 4-H created this lens because they recognized that their program did not reflect the diversity of their target audience, the youth. This is a common challenge in Extension and one which this lens can help meet. While these principles and questions were created for the 4-H program, they are general enough for any Extension educator to use and are a useful tool for self-examination as well.





To learn more about the lens and other Minnesota 4-H youth programs, visit <https://extension.umn.edu/working-youth/what-youth-development>.

¹ Harrington, R., Russo, J.P., Stevenson, A., Ecklund, K., &Derdowiski, J. (2018). Diversity and First Generation 4-H Lens. St. Paul, MN: University of Minnesota. Pg. 3.

² Harrington, R., Russo, J.P., Stevenson, A., Ecklund, K., &Derdowiski, J. (2018). Diversity and First Generation 4-H Lens. St. Paul, MN: University of Minnesota. Pg. 8.





Calvert County Local water Quality

+ JACKIE TAKACS

Over the last few years, the county governments of Southern Maryland have been pro-active in supporting water quality and environmental stewardship in partnership with UME’s Watershed Protection and Restoration Program (WPRP). Currently each county’s Department of Public Works provides funding for rain barrel programming and incentives, and St. Mary’s County supports a part-time coordinator to implement its Watershed Stewards Academy.



Rain barrel workshop hosted and incentivized by Charles County and instructed by Jackie Takacs, University of Maryland Sea Grant Extension. Source: Jackie Takacs

This year we are excited to announce that Calvert County will be the first county in the state to support a half-time, professional-track faculty member dedicated to local water quality. Five years in the making, with support from the Department of Public Works, Department of Community



"Calvert County will be the first county in the state to support a half-time, professional-track faculty member dedicated to local water quality."

Resources and the County Administrator, Calvert County will now have a dedicated person at the University of Maryland Extension Office to work in collaboration with the aforementioned county departments implementing programs on issues that pertain to stormwater, well and septic management for the non-profits, industries and citizens of the county.

Specifically, this position will:

- Assist the County in meeting the public education and outreach and public participation/involvement elements of the County's MS4 permit through educational programming including workshops, trainings, demonstrations and exhibiting activities.
- Develop a Watershed Stewards Academy (WSA) in the county. Educating and supporting a group of volunteer community leaders in the protection, restoration, and conservation of watersheds, working to reduce the negative impacts of stormwater runoff into the Chesapeake Bay and who are versed on county regulations and environmental goals.
- Foster healthy communities through well water quality and septic system educational programming including workshops, trainings, and demonstrations.

Programming will help UME educators, local county officials, septic industry professionals, and state resource agency mobilize resources to:





- Track and report on select small-scale stormwater BMPs for inclusion into State and Federal TMDL/WIP reporting
- Assist the County and local NGOs in acquisition of outside funding to support the implementation of projects
- Work one-on-one with select property owners and homeowners' associations to solve stormwater issues

Sounds like a lot ???

Rest assured, this new person will not be alone in their efforts. They will become part of the statewide WRPR team, having access to 6 state specialists working in watershed restoration and well and septic education, as well as the vast resources of the University of Maryland, College of Agriculture and Natural Resources.



Thanks to support from Calvert County, Jackie Takacs will now have some help putting on rain barrel workshops like the one shown above. Source: Bill Hubbard.

For more information about this new position, the new Calvert WSA or programming throughout Southern Maryland, contact Jackie Takacs at takacs@mdsg.umd.edu.



Watershed Stewards Academy Retreat

+ KELLY MACBRIDE-GILL



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In early May there was a meeting of minds from across Maryland and DC as Master Watershed Stewards gathered for a Watershed Stewards Academy (WSA) retreat. Discussion centered around what would support Master Stewards to best take action to improve the quality of local waterways. Great brainstorming took place, Master Stewards shared their inspirational success stories, and the day ended with a tour of the Anacostia, thanks to National Capital Region WSA! If you would like to learn more about a WSA in your area please visit our [website](#).



Getting feedback from Master Watershed Stewards was a vital part of the day's purpose and will guide future efforts to better meet the needs of WSAs statewide. Source: Laura Coste'.



Money, Money, Money, Money... Money

[Repeat: x 6]
(think O'Jays)

+ AMANDA ROCKLER



Are you interested in installing a small-scale stormwater best management practice such as a rain garden, a conservation landscape, permeable pavers, rain barrels or even a green roof? You may be eligible to be to receive money for installing these types of practices and more! The following are the rebate/reimbursement/incentive programs* currently available in Maryland and DC.

[RainScapes \(Montgomery County\)](#)

[RainScapes \(City of Rockville\)](#)

[RainScapes \(City of Gaithersburg\)](#)

[RainCheck \(Prince George's County\)](#)

[CleanScapes \(Howard County\)](#)



Residential rain garden installed with assistance from Howard County CleanScapes Program. Source: Howard County





"Money, Money, Money, Money... Money"

[Septic Savers \(Howard County\)](#)

[Anne Arundel County Watershed Protection and Restoration Fee Credit Program](#)

[Baltimore City Stormwater Fee Credit Program](#)

[RiverSmart Homes \(Washington D.C.\)](#)

[Frederick County Septic Pump-Out Program](#)

[Frederick County Creek Re-Leaf Program](#)

[Charles County Watershed Protection and Restoration Fee Credit](#)

[Charles County Septic Pump-out & Riser Reimbursement Program](#)

[Calvert County's Prize Drawing for BAT septic upgrade](#)

*If you are not on this list and offer an incentive or credit program, please let us know so that we can highlight your program.



Are you eligible for a rain barrel rebate or incentive? Check out your county or city program and see. Souce: Amanda





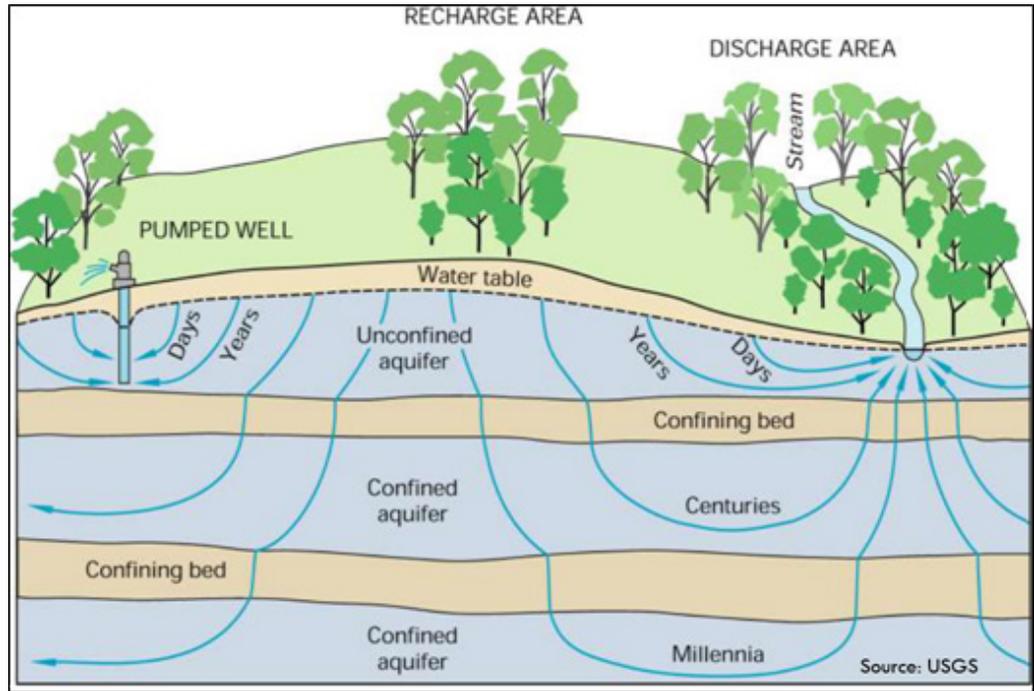
Groundwater's Significance and Connection to Bay Water Quality

+ ANDY LAZUR

As residents of the Chesapeake Bay watershed, we are aware of the importance of protecting water quality, stream health and its impact on the Bay, and watershed protection practices to reduce impacts. What is often not as well understood is the importance of groundwater to Bay health. Sure, we know that much of our drinking water comes from groundwater and we should protect it, but how do we do that, and what is the connection to the Bay. This article introduces the significance of groundwater to Bay water quality and a future article will cover groundwater protection practices.



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Age or time groundwater moves from recharge area to surface area waters. Source: US Geological Survey.





“Goundwater is the largest supply of freshwater on earth, and the biggest source of drinking water for the U.S. and for about one-third of Marylanders.”

Groundwater is the largest supply of freshwater on earth, and the biggest source of drinking water for the U.S. and for about one-third of Marylanders. Groundwater is a result of a natural process called the hydrologic, or water, cycle. As rain percolates down through the ground, water fills in voids and spaces within the soil and bedrock serving as storage areas or aquifers. The soil acts as a chemical and biological filter transforming, reducing or eliminating nutrients, some contaminants and pathogenic bacteria. It is this interaction of the soil, geology, water, and land use practices that influences the chemical makeup and quality of groundwater. Shallow aquifers tend to be less filtered than deeper ones due to less time passing through the soil. Water in shallow aquifers may have only traveled for days, weeks, or years, compared to centuries or millennia for deeper aquifers. The majority of springs in the Chesapeake Bay region have been shown to be 10 to 20 years old.

Groundwater quality and quantity are facing increasing threats. New development and irrigation demands are causing groundwater levels to decline, especially in the deeper aquifers of Maryland’s Upper Eastern Shore region. Some shallower groundwater levels however, are increasing, though this rising water can come with increased salinity, likely due to sea level rise. One lesser-known factor of groundwater is its substantial contribution to total streamflow in the Bay watershed, ranging from 16% to 92%, with a median value of 54%. In addition, groundwater quality concerns are intensifying as increased use of a variety





"Nearly half (48%) of the total nitrogen load to streams in the Chesapeake Bay watershed comes from groundwater."

of industrial and household chemicals, road salts and even sea level rise have a cumulative negative impact on quality. Another significant factor of groundwater is that nearly half (48%) of the total nitrogen load to streams in the Chesapeake Bay watershed comes from groundwater. This nitrogen source ranges from 17% to 80% depending on location, with the lowest contributions in forested areas and highest in agricultural regions.

These significant contributions of groundwater to the Bay and its quality emphasize the connectivity of our water resources and present an additional stewardship consideration and opportunity for us as we work to reduce environmental impacts. Fortunately, many of the watershed protection practices that we implement, e.g. riparian buffers, reduction in fertilizer use, stormwater management, etc., reduce the impact on groundwater quality. However, more work is needed and it is important to include groundwater in our thinking about Bay stewardship and restoration.





Day Trippin' on Delmarva

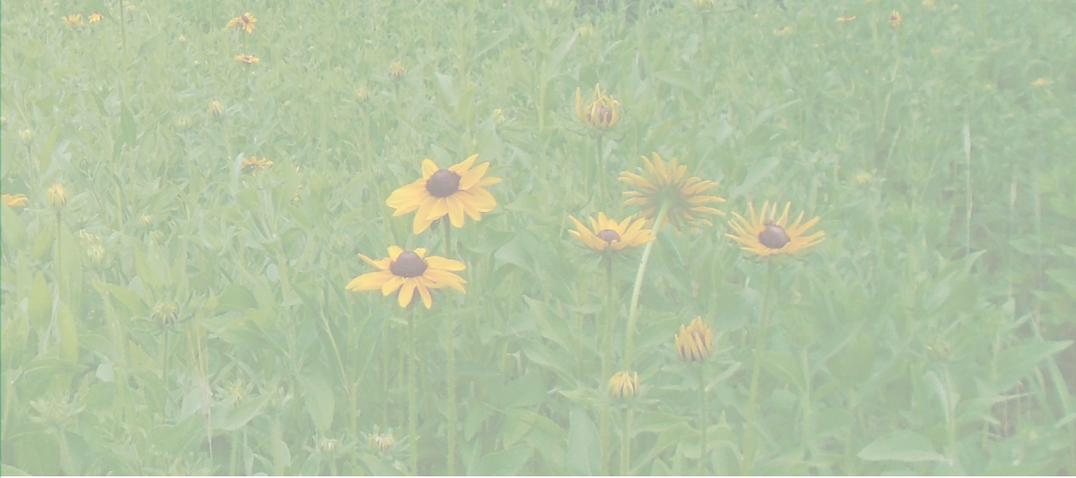
+ ERIC BUEHL

In February of 2017, a small group met at [Adkins Arboretum](#) near Ridgely, Maryland to discuss potential grant funding to improve water quality draining from the parking lot into a nearby stream. The stream, Blockston Branch, actually separates the parking area from the visitor's center and flows into Tuckahoe Creek, a major tributary to the Choptank River. Over the years, Adkins Arboretum has worked to improve conditions on the branch by managing the area as wetlands and by controlling invasive plant species and felt they needed to reduce runoff from the parking lot.



Before image top/After image bottom: Former parking spaces now work decreasing stormwater runoff, improving water quality, providing habitat and a place for pollinators, and educating visitors. Besides all that, it looks really cool! Source: Eric Buehl.





“The majority of the construction was completed in less than 3 months, an impressive feat by any measure.”

Not long after that meeting, a proposal to the Chesapeake Bay Trust’s Green Streets, Green Jobs, Green Towns (G3) grant program was submitted to develop plans to install a host of stormwater best management practices (BMP). After completing the design phase, a mix of funding from the Chesapeake Bay Trust’s G3 and the Maryland Department of Natural Resources was secured to construct the BMPs and to do native plantings. The majority of the construction was completed in less than 3 months, an impressive feat by any measure. And to get the project done in such a short amount



Before image top/After image bottom: Prior to construction, this raised bed was a demonstration area for different native plants but required constant watering. It’s still a great demonstration plant area but now it serves as part of the stormwater management treatment system.
Source: Eric Buehl.





of time required a real team approach. Those involved with the project included Adkins Arboretum staff, University of Maryland Sea Grant Extension, MD Department of Natural Resources, Caroline County Planning and Codes and Environmental Health Division, Campion Hruby Landscape Architects, Designgreen LLC, and Unity Landscape Design/Build, Inc.

So the next time you're looking for something to do, stop by and visit the amazing facility, staff, and trails at Adkins Arboretum and while you're there, check out the stormwater BMPs and plantings that are helping to improve water quality in the Tuckahoe Creek, Choptank River, and the Chesapeake Bay. You're also not far from [Tuckahoe State Park](#) either, so plan to make a day of trippin' around Delmarva.



Before image top/After image bottom: Despite their best efforts, keeping plants alive in this parking island was difficult. Now it's part of the stormwater system and helps to decrease runoff and will eventually provide shade when the trees get taller. Source: Eric Buehl.



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Headwaters is a publication providing information and resources for Extension and watershed protection professionals. It is a joint production of the University of Maryland Extension and Maryland Sea Grant Program. If you have any comments, questions, or ideas for Headwaters, please contact the Editor: Eric Buehl ebuehl@umd.edu

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